Status of the Claims and Claim Objections

Claims 4, 5 and 14-17 are pending in the application. Claims 4 and 16 have been amended in order to more particularly point out and distinctly claim that which Applicants regard as the invention. Support for the amended claims can be found generally through Applicants' Specification.

Particularity and Distinctiveness of the Claims

The Examiner has rejected Claims 4, 5 and 14-17 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter applicant regards as the invention. The Examiner asserts that Claim 4 (claims 5 and 14 dependent on) and newly amended Claim 14 (claim 15 dependent on) and 16 are indefinite in the recitation of a heart alpha kinase, as it is unclear what features define a "heart" alpha kinase from other alpha kinases. It is the assertion of the Examiner that Applicants have not distinguished between each of the different types of alpha kinases such that one would know whether they are in possession of a heart, melanoma, kidney, skeletal muscle or lymphocyte kinase. Applicants respectfully disagree and submit that the term heart alpha kinase is clear to the skilled artisan, based on a reading of the pending claims and the description and definition provided in the Specification. Applicants have above amended Claim 4 to more particularly set out that which is claimed. Applicants also point out that the language of the preamble of the Claim is further defined in subparts a, b and c, which particularly set out the claimed nucleic acid sequences which encode the mammalian heart alpha kinase. Taken together, the Specification and claims provide a clear set of metes and bounds and definition of what features define a heart alpha kinase.

In view of the foregoing amendments and remarks, Applicants submit that the Examiner's rejection under 35 U.S.C. 112, second paragraph, is obviated and should be withdrawn.

The Specification Fully Enables the Claimed Invention

The Examiner has rejected Claims 16 and 17 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in the art that the inventor, at the time the Application was filed, had possession of the claimed invention. The Examiner states that since the genus of transformed host cells comprises those host cells transformed with a DNA sequence that encodes a "fragment of" a heart alpha kinase, and said fragments of a heart alpha kinase need not necessarily have alpha kinase activity. Therefore, the Examiner asserts, many structurally and functionally unrelated DNAs are encompassed within the scope of these claims, including partial DNA sequences. Applicants respectfully disagree. Applicants have above amended Claim 16 to more particularly set out that which is claimed. Claims 16 and 17 are directed to unicellular host cells transformed with DNA encoding a heart alpha kinase, wherein said DNA consists of the DNA of SEQ ID NO: 34, DNA sequences hybridizing thereto under standard stringency hybridization conditions, DNA sequences that encode the same amino acid sequence of SEQ ID NO: 34 or its hybridizing sequences, and a fragment of SEQ ID NO:34 which encodes a polypeptide expressed in the heart and having alpha kinase activity. Applicants submit that the unicellular host cells of pending Claims 16 and 17 are described in the Specification in such a way as to reasonably convey to the skilled artisan that the inventor had possession thereof at the time the Application was filed.

The Examiner has further rejected Claims 16 and 17 under 35 U.S.C. 112, first paragraph, because the Examiner asserts that the Specification, while being enabling for a host cell transformed with a DNA molecule comprising SEQ ID NO: 34, does not reasonably provide enablement for any host cell transformed with any DNA sequence which encodes a fragment of SEQ ID NO: 34 or DNA sequences which hybridize to a fragment of a DNA sequence which encodes SEQ ID NO: 34, particularly in as much as the Examiner asserts that many of those DNAs which encode a fragment of a heart alpha kinase will not encode a polypeptide with alpha kinase activity. Applicants respectfully disagree and submit that the Specification clearly enables the skilled artisan to make and/or use the host cells as claimed.

Applicants have above amended Claim 16 to more particularly set out that which is claimed. Applicants again assert that while some experimentation to make, test and use such host cells would be necessary, such experimentation would utilize well known methods and standard skills and would not constitute undue experimentation. Applicants submit that a person of ordinary skill in the art could, without undue experimentation, make and use the host cells encompassed by the claims, including host cells transformed with a DNA sequence of a fragment of SEQ ID NO:34 which encodes a polypeptide expressed in the heart and having alpha kinase activity.

In view of the foregoing remarks, Applicants submit that the Examiner's rejection under 35 U.S.C. 112, first paragraph may properly be withdrawn.

The §102 Rejection

Claims 16 and 17 have been rejected under 35 U.S.C. 102 (a) as being anticipated by Scharenberg et al [WO 00/40614, July 2000]. While the Examiner acknowledges that Scharenberg does not teach or suggest the particular alpha kinase sequences of the instant application (SEQ ID NO:34) and further does not disclose or suggest host cells transformed with the heart alpha kinase sequence, the Examiner remarks that Scharenberg et al. does teach expression vectors comprising host cells transformed with a DNA which encodes protein named SOC-2/CraC-1 which has kinase activity. The Examiner asserts that the nucleic acid taught by Scharenberg is clearly encompassed by a "DNA sequence or degenerate variant thereof, which encodes a heart alpha kinase, or a fragment thereof, selected from the group consisting of a., b. and c." Applicants respectfully disagree. Applicants have above amended Claim 16 to more particularly set out that which is claimed. Scharenberg neither discloses every element of the rejected claims nor enables one skilled in the art to isolate or make the anticipating subject matter, specifically the claimed host cells, including host cells transformed with a DNA sequence of a fragment of SEQ ID NO:34 which encodes a polypeptide expressed in the heart and having alpha kinase activity. Applicants submit that the sequence of the SOC-2/CraC-1 kinase, which is a completely different sequence from the heart alpha kinase sequence, does not anticipate per se the claimed host cells, including a fragment of SEQ ID

NO:34 which encodes a polypeptide expressed in the heart and having alpha kinase activity. Applicants assert that the claimed host cells of the present invention are transformed with nucleic acid which is absolutely distinct from the nucleic acid of Scharenberg and are not anticipated by Scharenberg.

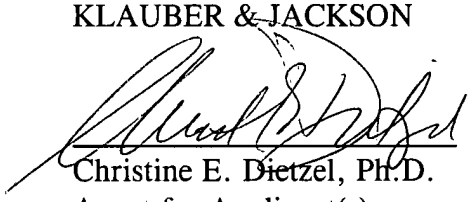
In view of the foregoing remarks, Applicants submit that the Examiner's rejection under 35 U.S.C. 102(a) may properly be withdrawn.

CONCLUSION

Applicants respectfully request entry of the foregoing amendments and remarks in the file history of the instant Application. The Claims as amended are believed to be in condition for allowance, and reconsideration and withdrawal of all of the outstanding rejections is therefore believed in order. Early and favorable action on the claims is earnestly solicited.

Respectfully submitted,

KLAUBER & JACKSON



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Complete Listing of Claims in Application U.S.S.N. 09/832,292

Claims 1-3 (cancelled)

4. (Currently amended) An isolated nucleic acid encoding mammalian heart alpha kinase expresssed in the heart and having alpha kinase activity, wherein the nucleic acid is selected from the group consisting of :

a. the DNA sequence of SEQ ID NO: 34;

b. DNA sequences that hybridize to the sequence of subpart (a) under standard hybridization conditions; and

c. DNA sequences capable of encoding the amino acid sequence encoded by the DNA sequences of subparts (a) or (b).

Claim 5 (original)

Claims 6-13 (cancelled)

14. (Previously amended) A recombinant DNA expression vector comprising the nucleic acid of Claim 4, wherein the DNA encoding the heart alpha kinase is operatively associated with an expression control sequence.

Claim 15 (original)

16. (Currently amended) A unicellular host transformed with a recombinant DNA molecule comprising a DNA sequence or degenerate variant thereof, which encodes a heart alpha kinase~~, or a fragment thereof,~~ selected from the group consisting of:

a. the DNA sequence of (SEQ ID NO: 34);

b. DNA sequences that hybridize to the foregoing DNA sequence under standard hybridization conditions; ~~and~~

c. DNA sequences that encode an amino acid sequence encoded by any of the foregoing DNA sequences; and

d. a fragment of SEQ ID NO:34 which encodes a polypeptide expressed in the heart and having alpha kinase activity;

wherein said DNA sequence is operatively linked to an expression control sequence.

Claim 17 (original)